



CA-NV AWWA Water Loss Technical Assistance Program

Wave 4 Water Audit Level 1 Validation Document

Audit Information:

Utility: Adelanto City of PWS ID: CA3610001
System Type: Potable Audit Period: Calendar 2016
Utility Representation: Victor Reid
Validation Date: 11/9/2017 Call Time: 9am Sufficient Supporting Documents Provided: Yes

Validation Findings & Confirmation Statement:

Key Audit Metrics:

Data Validity Score: 48 Data Validity Band (Level): Band II (26-50)
ILI: 3.35 Real Loss: 57.45 (gal/conn/day) Apparent Loss: 30.07 (gal/conn/day)
Non-revenue water as percent of cost of operating system: 9.2%

Certification Statement by Validator:

This water loss audit report has been Level 1 validated per the requirements of California Code of Regulations Title 23, Division 2, Chapter 7 and the California Water Code Section 10608.34.

All recommendations on volume derivation and Data Validity Grades were incorporated into the water audit. ☒

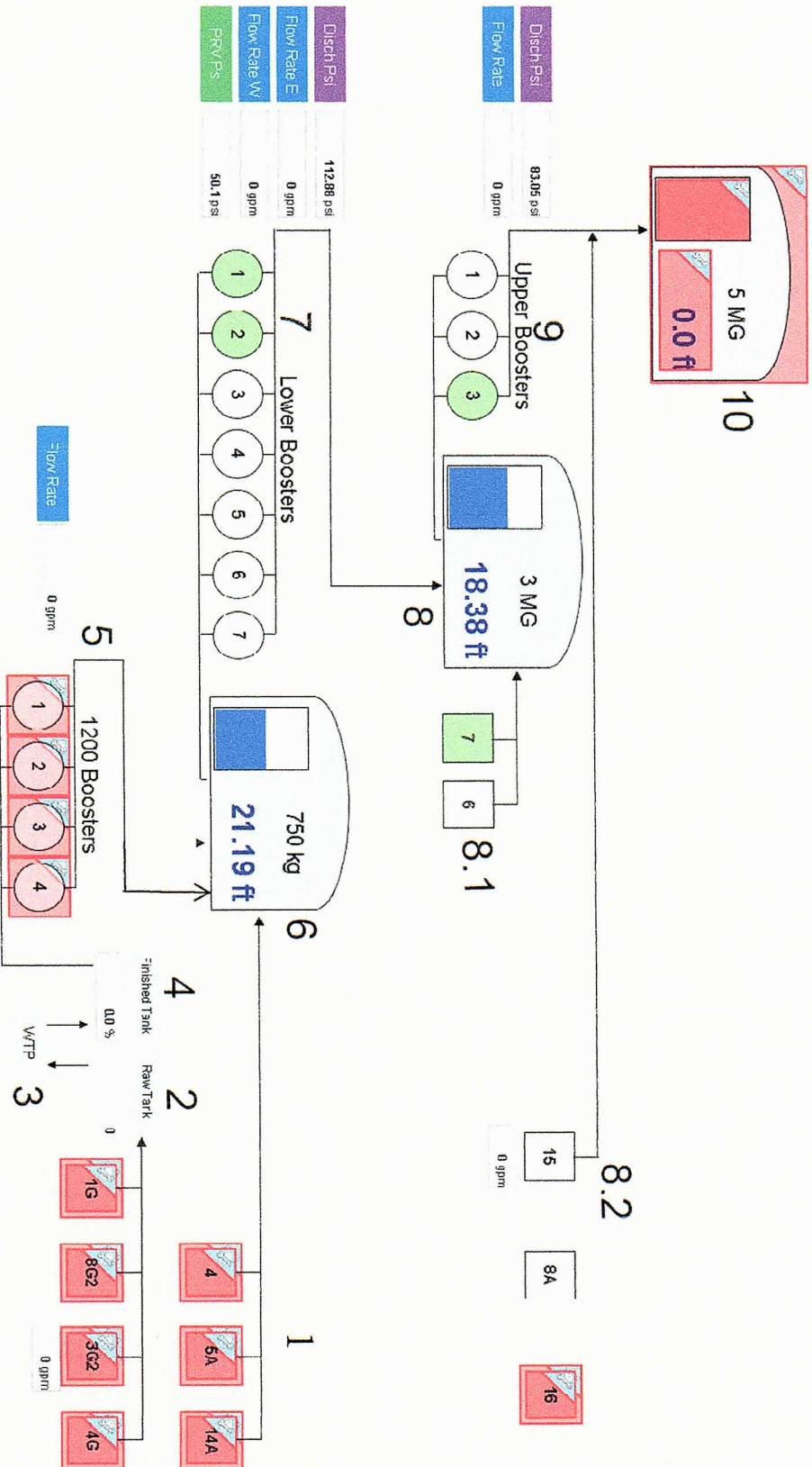
Validator Information:

Water Audit Validator: Kate Gasner / Carolyn Prescott (support) Validator Qualifications: Contractor for CA-NV AWWA Water Loss TAP

Validator Provided



City of Adelanto Water System





#	AWWA Water Audit Input	Code	Final DVG	Basis on Input Derivation	Basis on Data Validity Grade
1	Volume from Own Sources	VOS	2	Supply meter profile: Entirely ground water source profile. 10 wells exist, but only 8 were in operation supplying the potable water system. VOS input derived from: Manual reads from production meters as archived. Well meters are mechanical propeller meters. Comments: Input derivation from supporting documents confirmed. Exclusion of non-potable volumes confirmed.	Percent of own supply metered: 100% Signal calibration frequency: None. For mechanical meters this is not relevant. Volumetric testing frequency: Within last 5 years but less than annually. Meters are tested every 2 years. Volumetric testing method: Comparative apparatus. Pitot tube test. Percent of own supply tested and/or calibrated: 100% Comments: Consider using test results to inform a correction onto volume supplied.
2	VOS Master Meter & Supply Error Adjustment	VOS MMSEA	2	Input derivation: Left blank. Net storage change included in MMSEA input: No. Comments: Operate 21 MG of storage.	Supply meter read frequency: Daily. Supply meter read method: Manual. Frequency of data review for trends & anomalies: Monthly. Storage levels monitored in real-time: No. Comments: No additional comments.
3	Water Imported	WI	4	Import meter profile: Imports only occurred for a couple days in June during the audit period. City of Victorville supplies imported water through one intertie. WI input derived from: Totalization of volumes per redundant meter reads by utility. Comments: Input derivation from supporting documents confirmed. Exclusion of non-potable volumes confirmed.	Percent of import supply metered: 100% Signal calibration frequency: None. Not relevant for mechanical meter. Volumetric testing frequency: Testing likely occurs. Volumetric testing method: Unknown. Percent of import supply tested and/or calibrated: 100% Comments: Verify testing protocol with City of Victorville, and provide testing documentation in future validation.
4	WI Master Meter & Supply Error Adjustment	WI MMSEA	2	Input derivation: Left blank Comments: No additional comments.	Import meter read frequency: Daily. Import meter read method: Manual. Frequency of data review for trends & anomalies: Monthly. Comments: No additional comments.
5	Water Exported	WE	n/a	n/a	n/a
6	WE Master Meter & Supply Error Adjustment	WE MMSEA	n/a	n/a	n/a



#	AWWA Water Audit Input	Code	Final DVG	Basis on Input Derivation	Basis on Data Validity Grade
7	Billed metered	BMAC	4	<p>Customer meter profile: Age profile: 10-20 years old with average falling around 15 years. Reading system: Manual. Read frequency: Monthly. Comments: Lag-time correction is not employed in input derivation. Input derivation from supporting documents confirmed. Exclusion of non-potable volumes confirmed.</p>	<p>Percent of customers metered: 100% Small meter testing policy: Reactive - complaint based or flagged-consumption testing only. Number of small meters tested/year: Not quantified, but known to be small. Large meter testing policy: Reactive - complaint based or flagged-consumption testing only. Number of large meters tested/year: Not quantified, but known to be small. Meter replacement policy: Operate a dead meter program, focusing on replacing meters with zero consumption based on billing flags. This reactive program will continue going forward, but likely will involve a smaller number of meters. Number of replacements/year: In total for 2016 replaced approximately 500 meters. In total have replaced 1800 since beginning of program. Billing data auditing: Standard billing QC, plus review of volumes by use type each billing cycle. Comments: No additional comments.</p>
8	Billed unmetered	BUAC	n/a	<p>Profile: No flat rate customers exist.</p>	n/a
9	Unbilled metered	UMAC	n/a	<p>Profile: All metered uses are assumed to be billed.</p>	n/a
10	Unbilled unmetered	UUAC	5	<p>Profile: Operational flushing and fire department usage. Comments: Flushing activities greatly scaled back due to drought. Custom California default of 0.25%xWS utilized.</p>	<p>Comments: Default grade applied.</p>
11	Unauthorized consumption	UC	5	<p>Comments: Default input applied. Because system is primarily in the open desert, theft directly from hydrants regularly occurs. Consider documenting cases of theft as they occur as documentation for future audits.</p>	<p>Comments: Default grade applied.</p>



CA-NV AWWA Water Loss Technical Assistance Program

Wave 4 Water Audit Level 1 Validation Document

Water System Name: City of Adelanto Water System ID Number: CA3610001 Water Audit Period: Calendar 2016

Water Audit & Water Loss Improvement Steps:

Steps taken in preceding year to increase data validity, reduce real loss and apparent loss as informed by the annual validated water audit:
Identify data gaps, commercial meter testing, leak survey, further steps to reduce unauthorized consumption, meter change-out program, AMI (Automatic Meter Reading System)

Certification Statement by Utility Executive:

This water loss audit report meets the requirements of California Code of Regulations Title 23, Division 2, Chapter 7 and the California Water Code Section 10608.34 and has been prepared in accordance with the method adopted by the American Water Works Association, as contained in their manual, *Water Audits and Loss Control Programs, Manual M36, Fourth Edition* and in the Free Water Audit Software version 5.

Utility Provided

Jessie Flores City Manager Signature 8-23-2018
Executive Name (Print) Executive Position Date